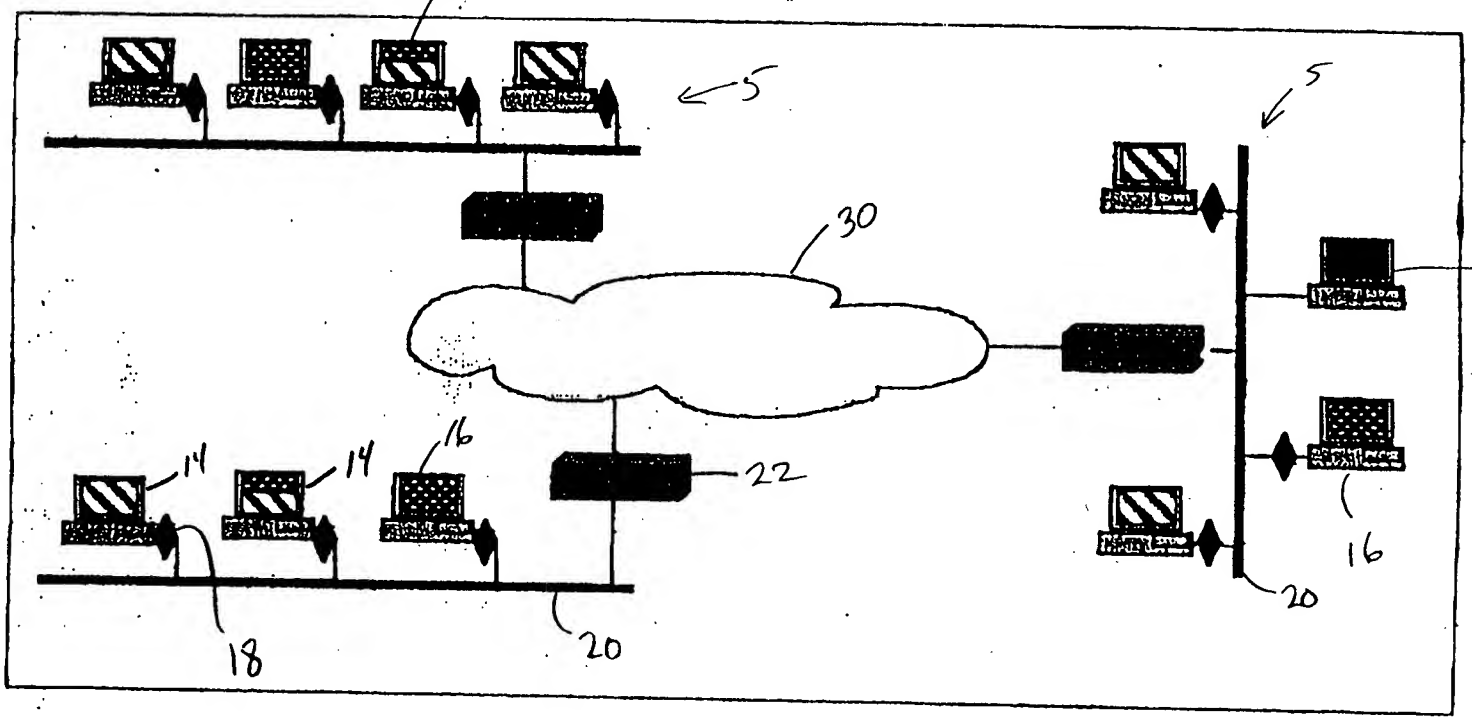


10

Fig 1

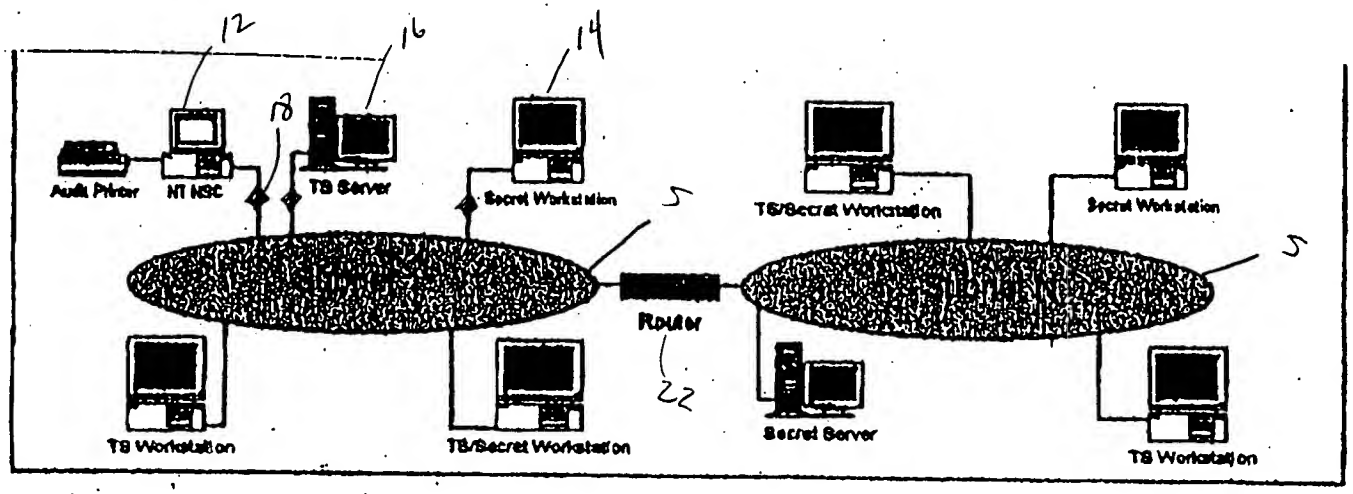

12
16
14
18
Audit Printer
NT NSC
TS Server
Secret Workstation
TS/Secret Workstation
Secret Workstation
5
5
Router
22
TS Workstation
TS/Secret Workstation
Secret Server
TS Workstation

Figure 2

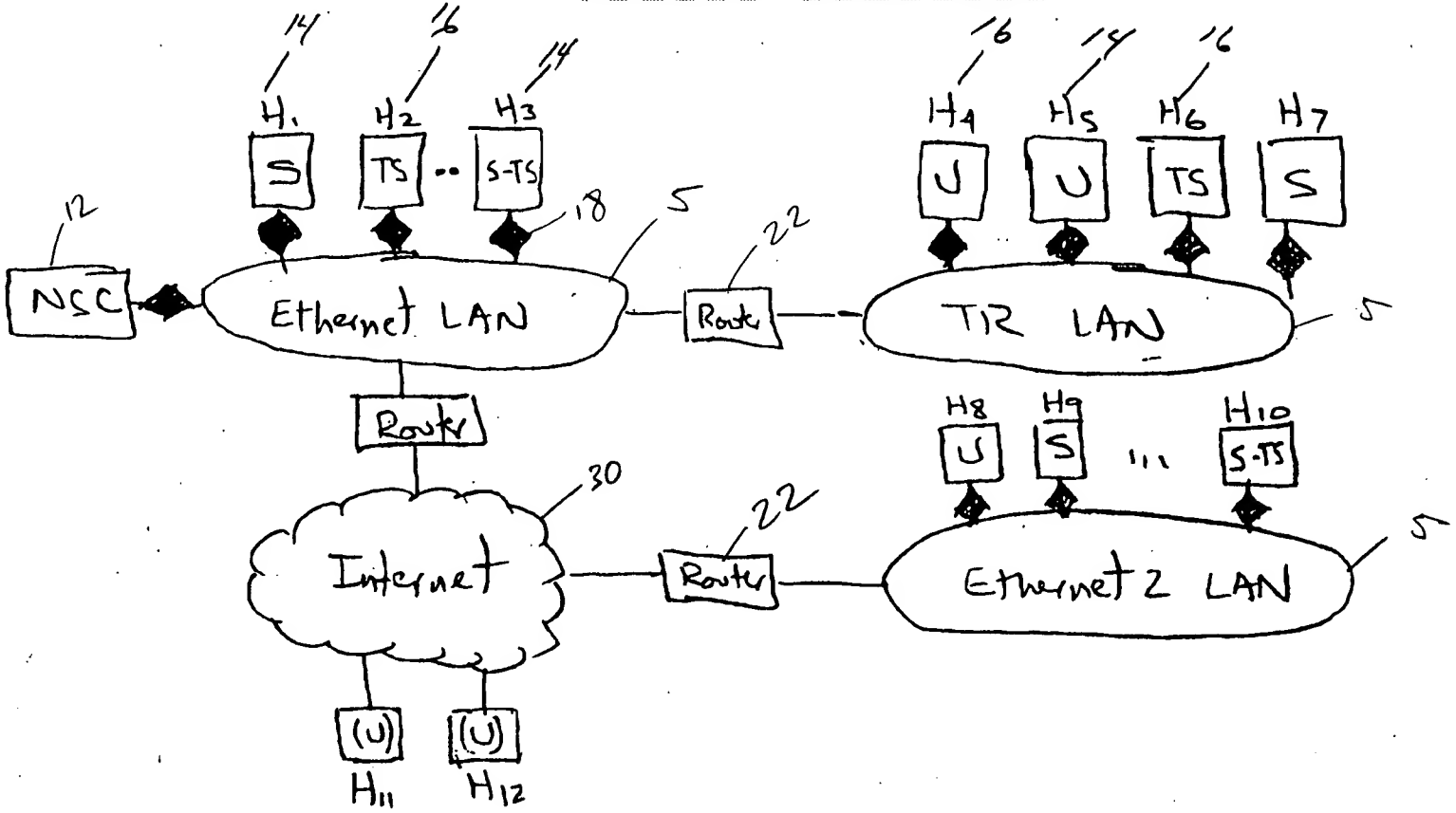

14
16
14
16
16
14
16
H1
H2
H3
H4
H5
H6
H7
S
TS
S-TS
U
U
TS
S
12
18
5
22
NSC
Ethernet LAN
Router
TIR LAN
5
Router
H8
H9
H10
U
S
S-TS
30
22
5
Internet
Router
Ethernet 2 LAN
(U)
(U)
H11
H12

Figure 3

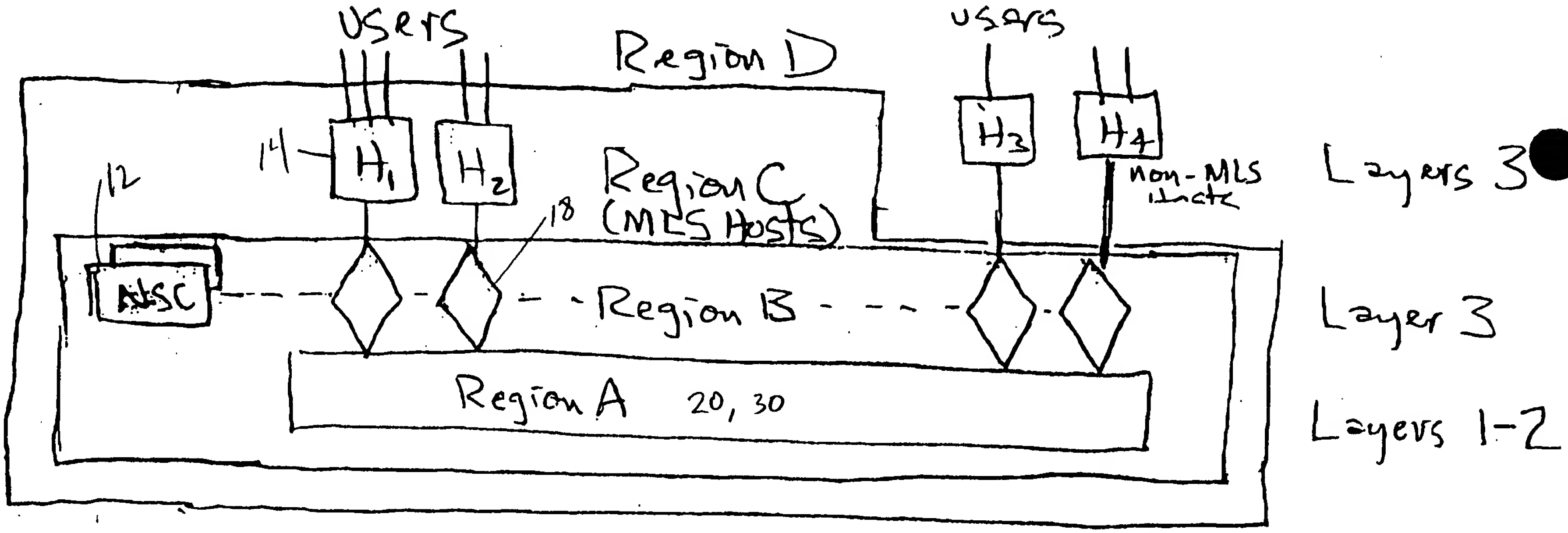
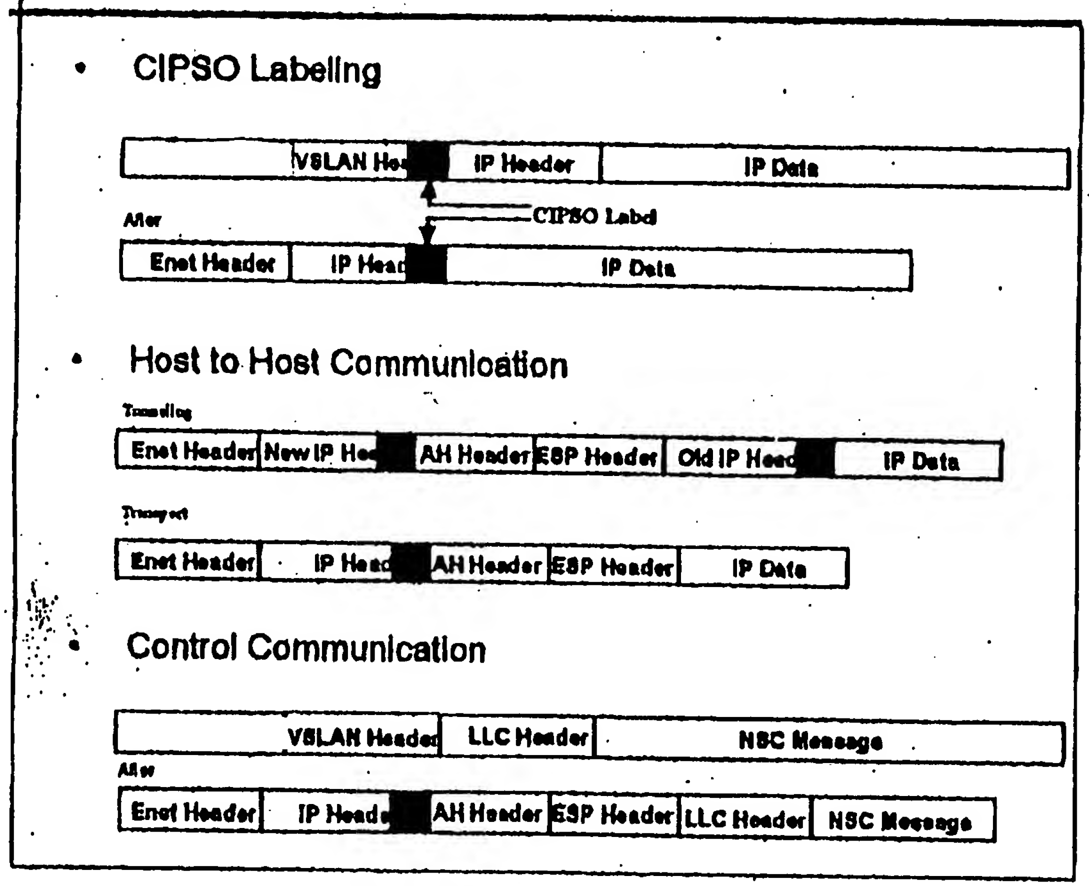

users
Region D
users
H1
H2
H3
H4
14
12
Region C
(MLS Hosts)
18
non-MLS
Layers 3
NSC
Region B
Layer 3
Region A
20, 30
Layers 1-2

Figure 4



CIPSO Labeling
VSLAN Hea
IP Header
IP Data
After
CIPSO Label
Enet Header
IP Head
IP Data
Host to Host Communication
Tunneling
Enet Header
New IP Hea
AH Header
ESP Header
Old IP Head
IP Data
Transport
Enet Header
IP Head
AH Header
ESP Header
IP Data
Control Communication
VSLAN Header
LLC Header
NSC Message
After
Enet Header
IP Heade
AH Header
ESP Header
LLC Header
NSC Message

Figure 5

256 Levels

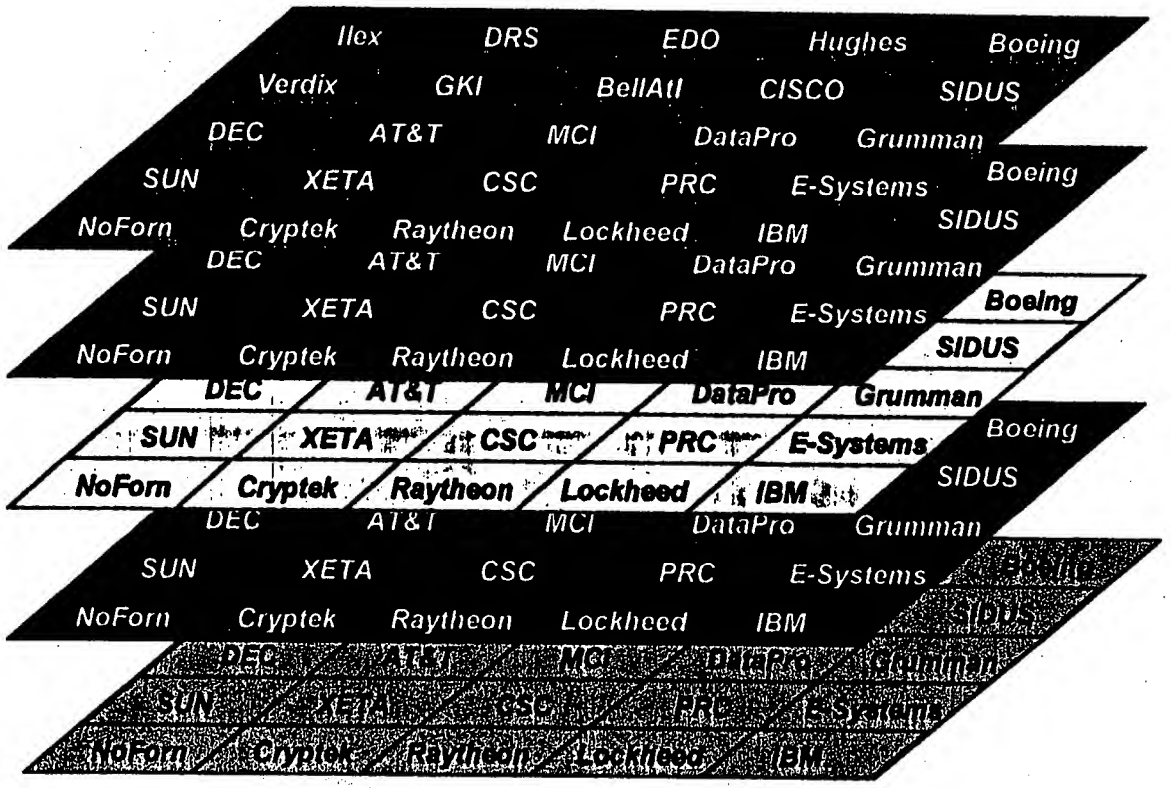
Top Secret

Secret

Proprietary

SBU

Unclassified



65,535 Categories

Figure 6

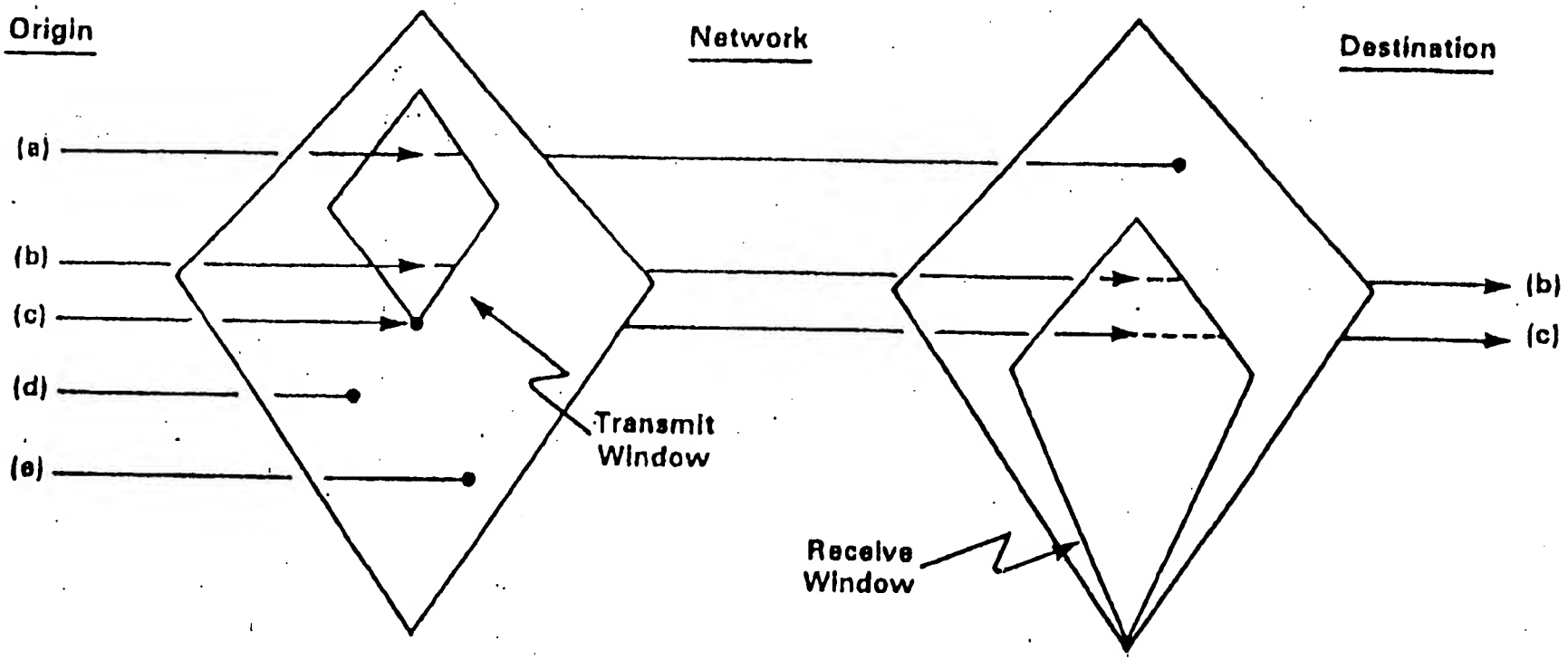

Origin
Network
Destination
(a)
(b)
(c)
(d)
(e)
Transmit Window
Receive Window
(b)
(c)

Figure 7

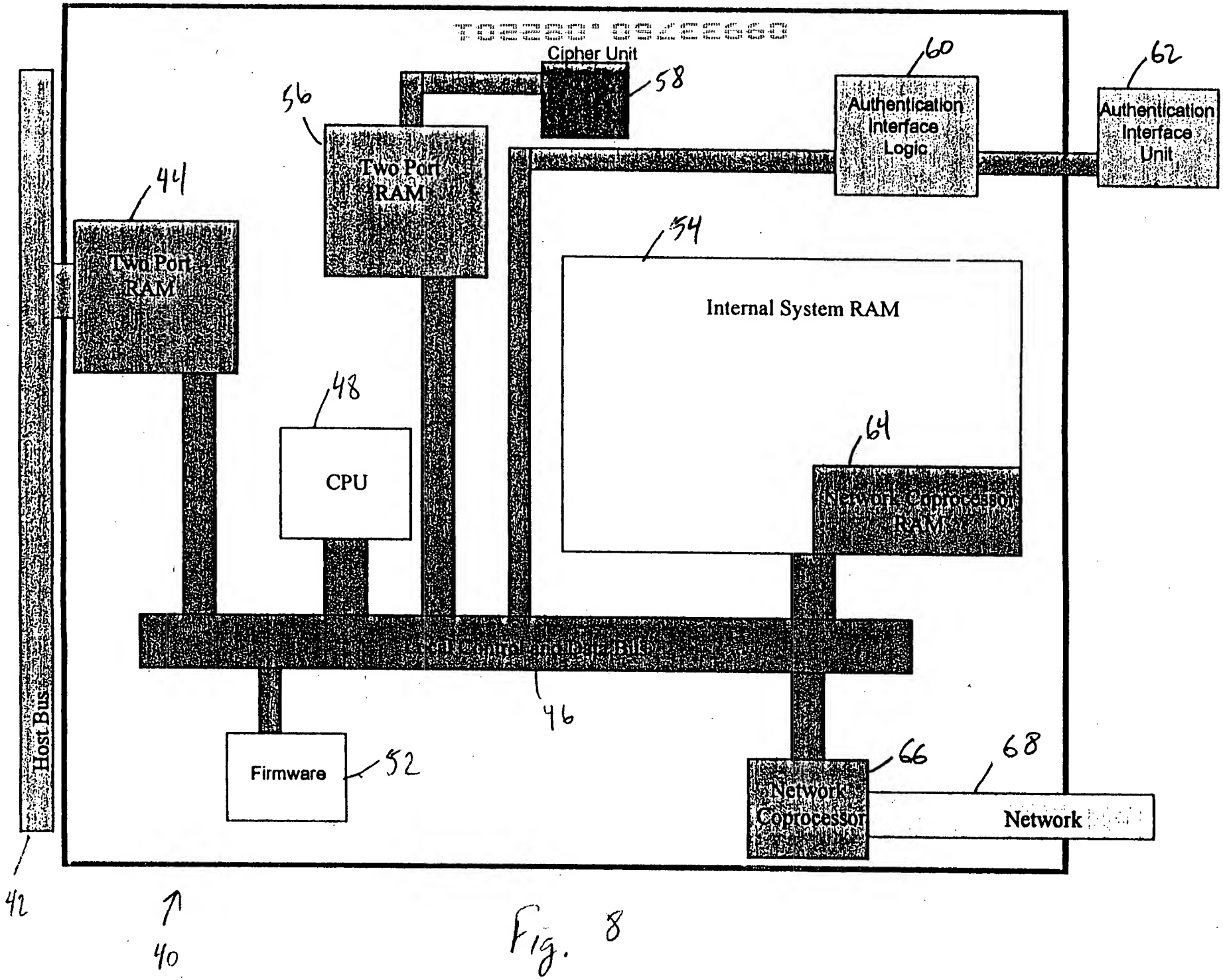

Cipher Unit
58
60
Authentication Interface Logic
62
Authentication Interface Unit
56
Two Port RAM
44
Two Port RAM
54
Internal System RAM
48
CPU
64
Network Coprocessor RAM
Host Bus
46
Firmware
52
66
Network Coprocessor
68
Network
42
40

Fig. 8

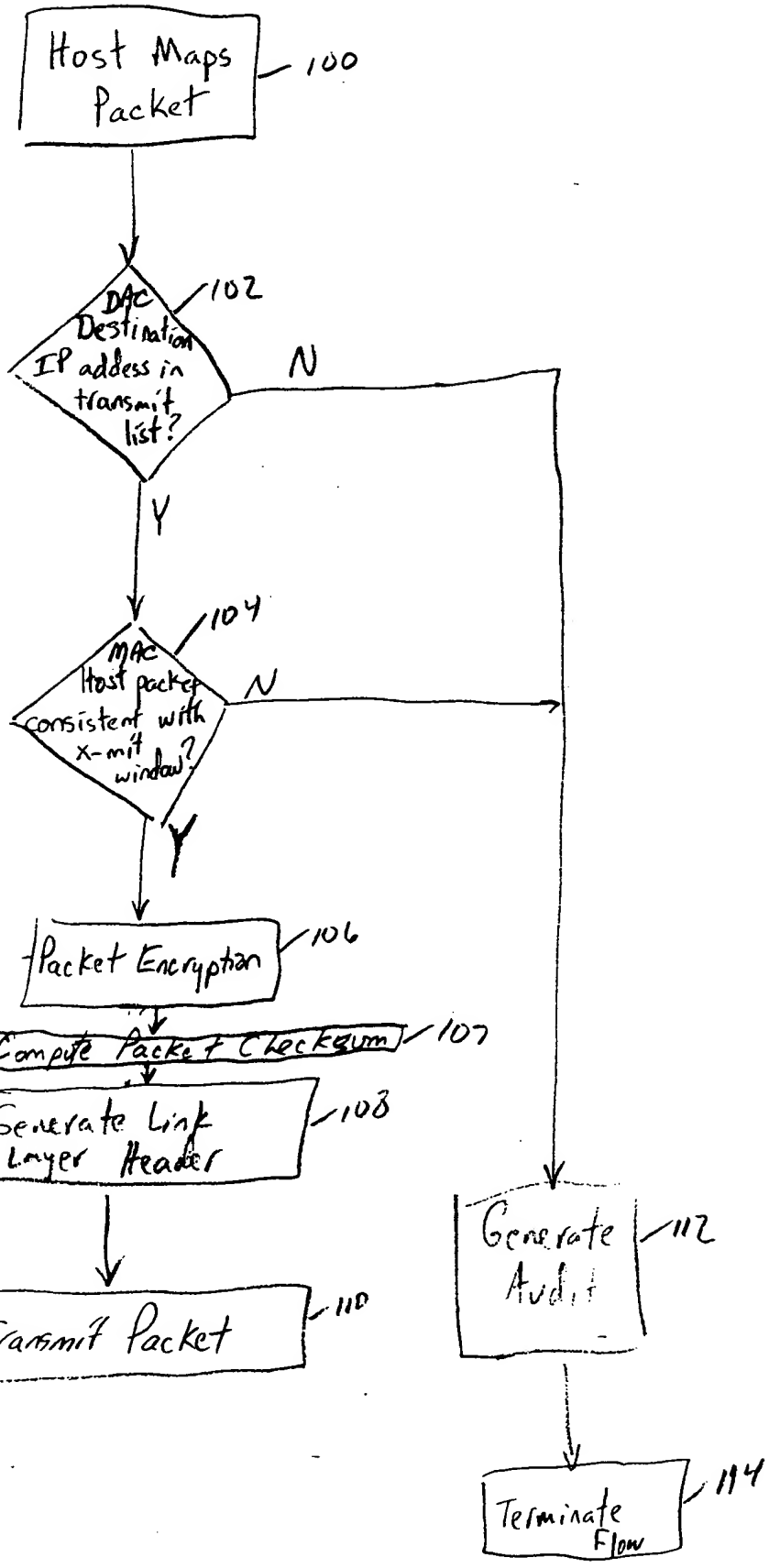

Host Maps Packet
100
DAC Destination IP address in transmit list?
102
N
Y
MAC Host packet consistent with x-mit window?
104
N
Y
Packet Encryption
106
Compute Packet Checksum
107
Generate Link Layer Header
108
Transmit Packet
110
Generate Audit
112
Terminate Flow
114

Fig. 9

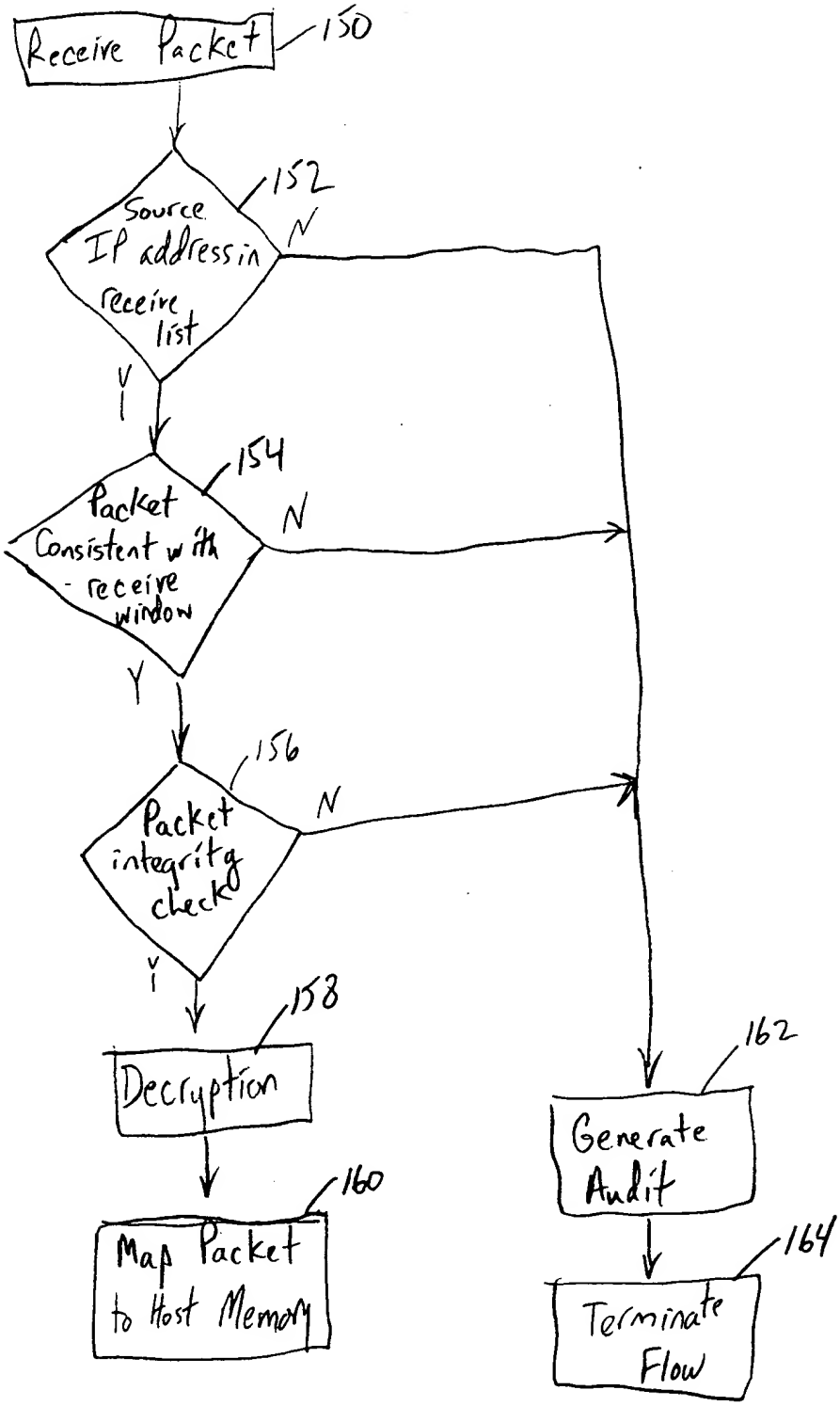
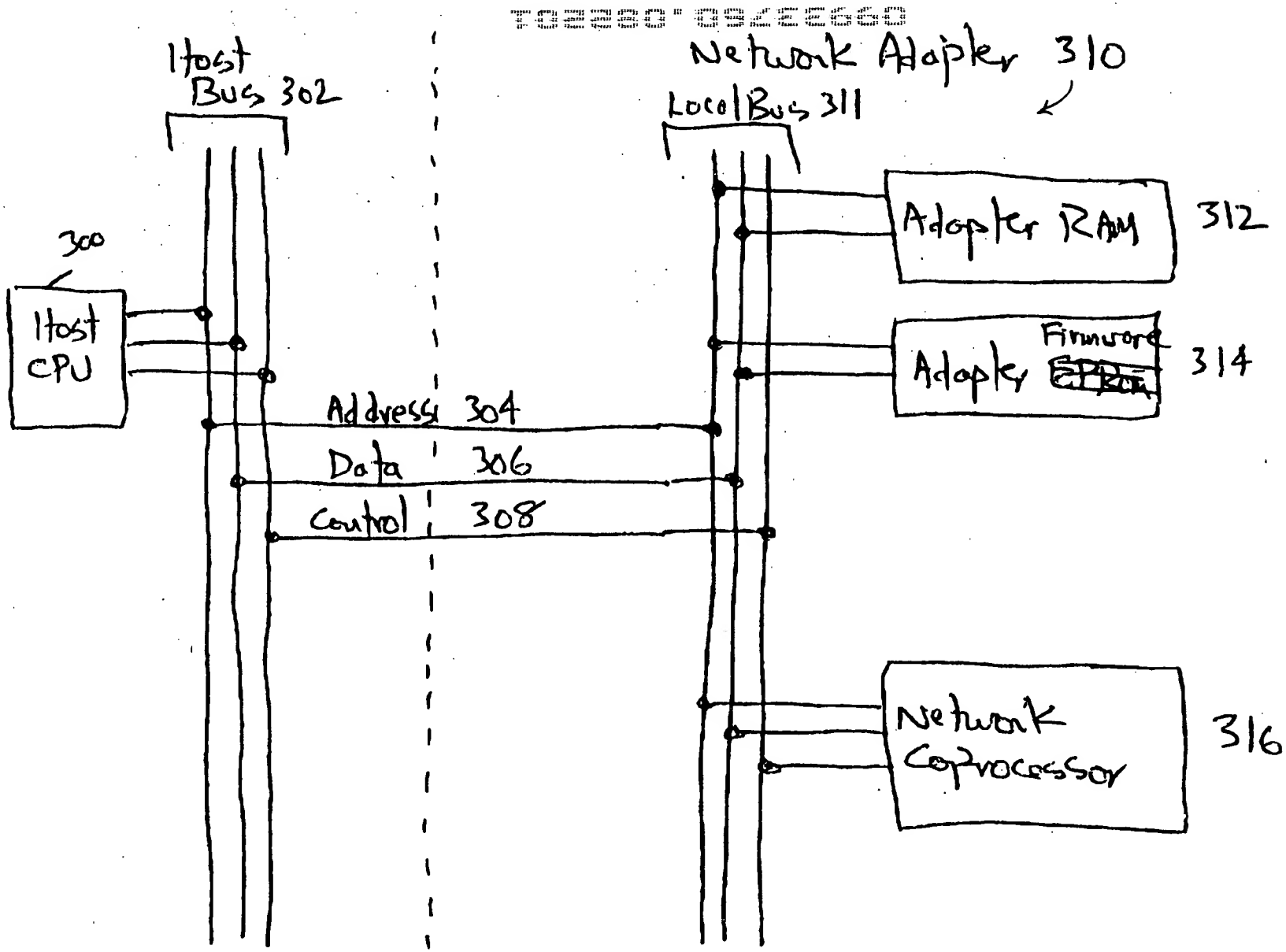

Receive Packet
150
Source IP address in receive list
152
N
Y
Packet Consistent with receive window
154
N
Y
Packet integrity check
156
N
Y
Decryption
158
Map Packet to Host Memory
160
Generate Audit
162
Terminate Flow
164

Fig. 10



Prior Art

Figure 11

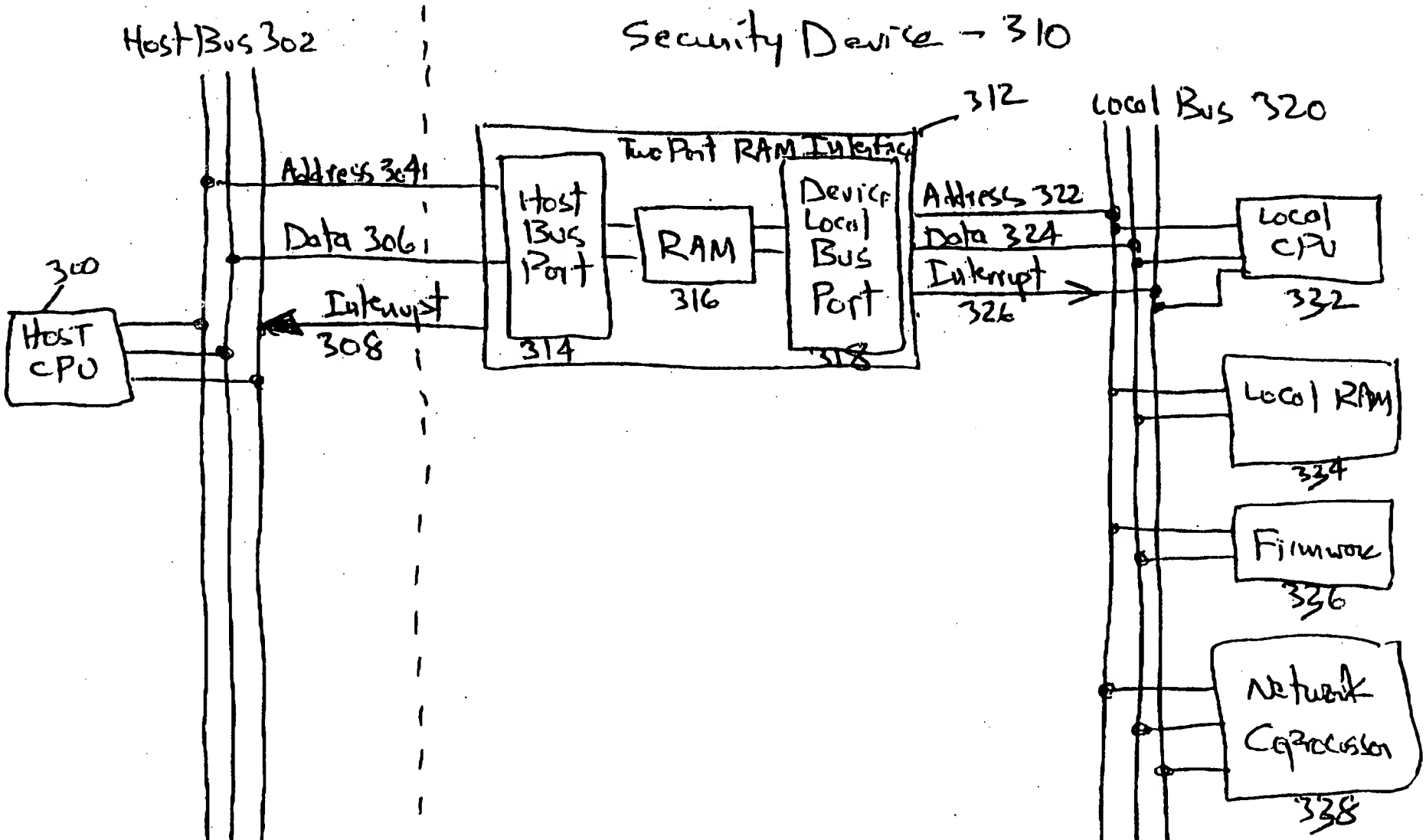

Host Bus 302
Security Device - 310
312
Two Port RAM Interface
Local Bus 320
Address 304
Data 306
Interrupt 308
300
Host CPU
Host Bus Port
314
RAM
316
Device Local Bus Port
318
Address 322
Data 324
Interrupt 326
Local CPU
332
Local RAM
334
Firmware
336
Network Coprocessor
338

Fig 12-

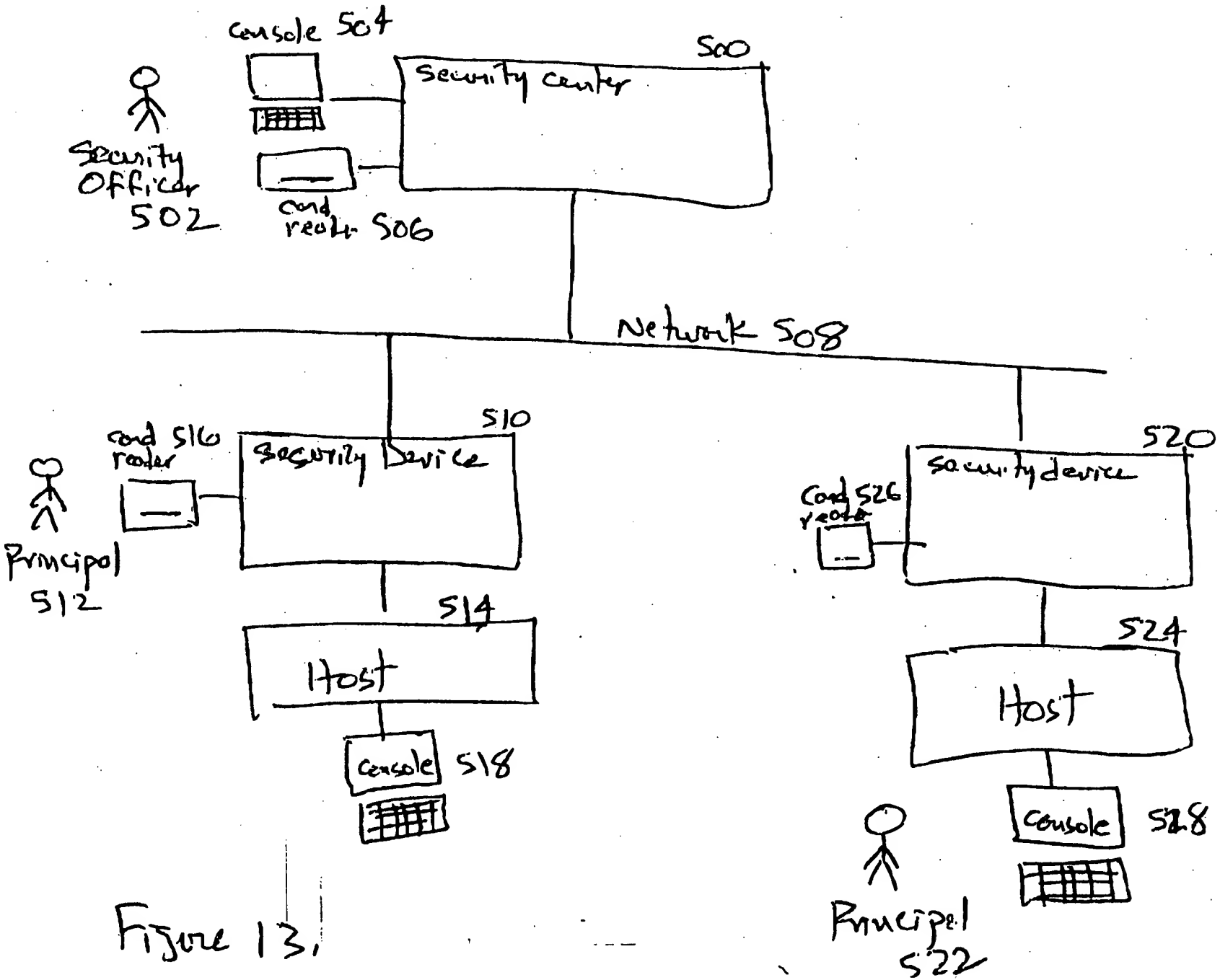

console 504
500
Security center
Security Officer 502
card reader 506
Network 508
510
card 516 reader
Security Device
Principal 512
514
Host
console 518
520
security device
Card 526 reader
524
Host
console 528
Principal 522

Figure 13.

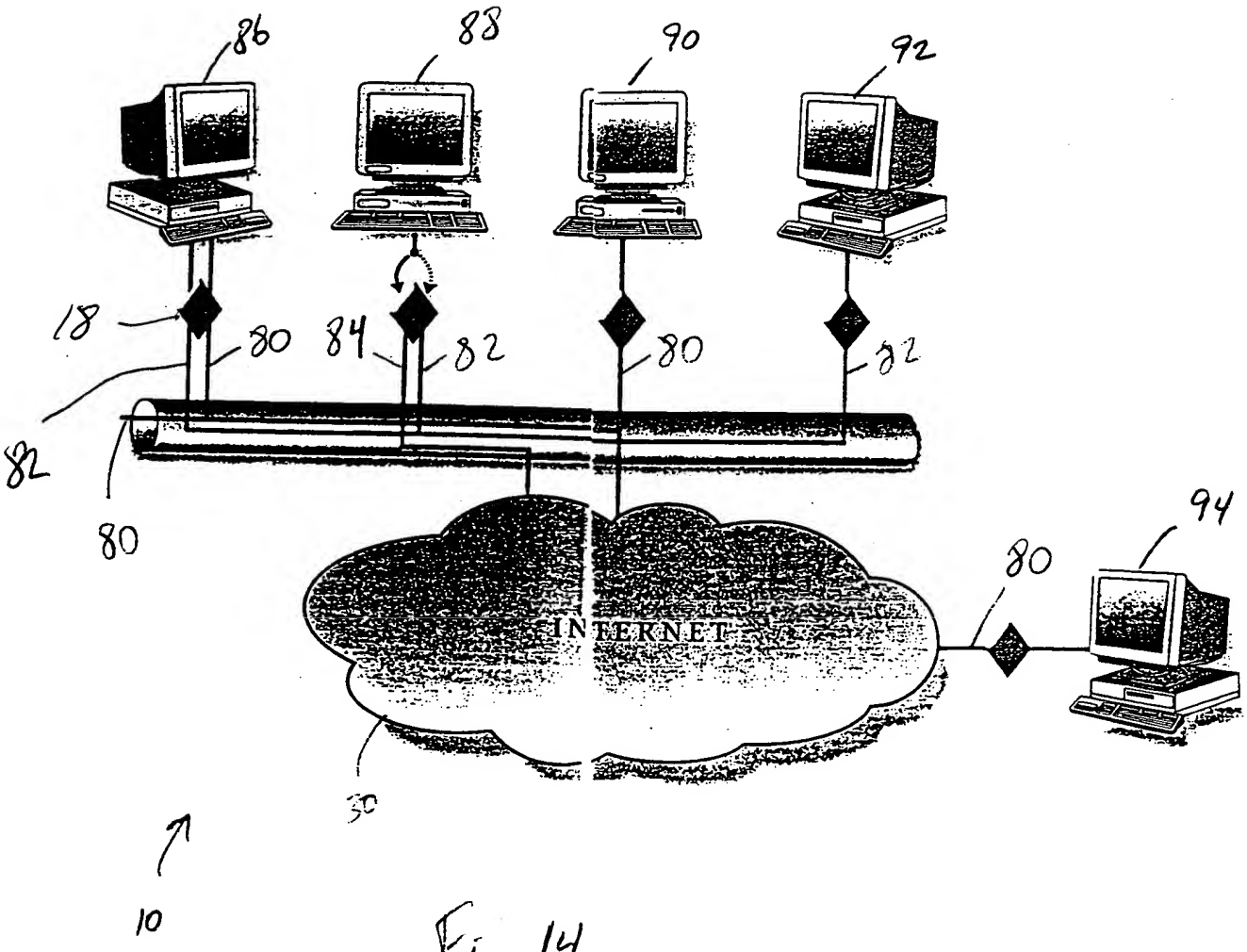


Fig. 14